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ACROGRAPHINOTUS MITMAJ, A NEW HARVESTMAN SPECIES FROM CENTRAL PERU (OPILIONES, GONYLEPTIDAE, PACHYLINAE)

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ABSTRACT. This paper presents the description of the new species, *Acrographinotus mitmaj* (Opiliones, Gonyleptidae, Pachylinae). It can be easily distinguished from its congeners by: male femur IV long and spiny, devoid of the rows of tubercles and/or apophyses characteristic of other nominal species in the genus; further, *A. mitmaj* new species bears a less developed median apophysis on the 3rd free tergite (larger armature in other species). Penis morphology (especially concerning the ventral process of the stylus) agrees with the generic diagnosis. Known localities of the new species are restricted to the upper Río Cañete valley (Departamento Lima, central Peru).

RESUMEN. Se describe la nueva especie *Acrographinotus mitmaj* (Opiliones, Gonyleptidae, Pachylinae). Ésta puede distinguirse fácilmente de otras especies en el género por el fémur IV del macho, largo y espinoso, sin las hileras de tubérculos y/o apófisis que caracterizan a los otros *Acrographinotus*; asimismo, *A. mitmaj* n. sp. presenta la apófisis mediana del 3er tergito libre menos desarrollada (dicha apófisis es mayor en otras especies). La morfología del pene (en especial del proceso ventral del stylus) concuerda con la diagnosis genérica. Las localidades conocidas de la nueva especie se limitan al valle superior del Río Cañete (Departamento Lima, Perú central).

Keywords: Opiliones, Gonyleptidae, *Acrographinotus,* Perú, Andes

In a previous paper (Acosta 2001) the taxonomic concept of the Andean genus *Acrographinotus* Holmgren 1916 (Opiliones, Gonyleptidae, Pachylinae) was reviewed and updated. Aside from several morphological characters formerly accepted (armature of scutum and ocular mound, number of tarsomeres (Roewer 1929; Soares & Soares 1954)), the penis morphology proved once again to be the best source for generic diagnostic features. Penes in this genus are characterized by the ventral process of stylus, which was described to recall a "round-combed ibis head" (Acosta 2001): distal end dilated, armed with a curved projection, and covered by a membranous expansion.

As already stated (Acosta 2001), the few subsequent references to the type species, *A. erectispina* Roewer 1929, are misidentifications made by its own author (Roewer 1957, 1963). In his 1963 paper, Roewer wrongly identified as *A. erectispina* two lots collected by Wolfgang Weyrauch, one from "Tintin, Río Cañete" in Central-West Peru, the remaining (supposedly) from "Cueva de San Andrés", in Departamento Cajamarca, Northern Peru. These specimens represent a still unnamed entity, here described as *Acrographinotus mitmaj*. In one lot there is also a mistake of transcription in Roewer's handwritten label: specimens that were published from "Cueva de San Andrés" were actually caught in "Yauyos" (as indicated in the original labels by Weyrauch), a locality near Tintin. Yauyos and Tintín (Departamento Lima, Perú) are until now the only known localities of this new species.

The genus *Acrographinotus* is known to exist in a wide range along the Andean region, from northern Peru to northern Argentina (Acosta 2001). Most specimens (both those mentioned in the literature, and new material so far studied by me) were collected in sites situated either in the eastern Andean watershed, inter-Andean valleys, or high-Andean (Puna) biotopes. The only three species hitherto known from the western Andean slopes occur in Departamento Lima, mid-Peru (Roewer 1929, 1956, 1957): *Acrographinotus curvispina* Roewer 1929, *A. ortizi* (Roewer

1957), and *A. mitmaj.* While the penis morphology of the latter undoubtely conforms to the generic concept, the external appearance diverges from all congeners, as briefly discussed below. At the moment, *Acrographinotus* contains two nominal species from Bolivia (*A. erectispina, A. niawpaq* Acosta 2001) and four from Perú (*A. curvispina, A. ortizi, A. ceratopygus* (Soares & Bauab 1972), *A. mitmaj*); no fewer than nine species still remain to be described (Acosta 2001 and unpubl. data). Specimens studied are deposited in the Senckenberg Museum, Frankfurt (SMF; RII: Collection Roewer II), and in the author's collection, Córdoba, Argentina (LEA).

Acrographinotus mitmaj new species
Figs. 1–12

Acrographinotus erectispina: Roewer 1963:59 (misidentification).

Type series.—Male holotype (SMF 39175—ex SMF RII 13957), 1 male paratype (SMF RII 13957), **PERÚ**: Tintín, Río Cañete, 24 March 1960 (W. Weyrauch). Female allotype, 6 males, 13 females paratypes (SMF RII 13956), 1 male, 1 female paratypes (LEA 000.142), Perú: Yauyos, Río Cañete, 10 January 1960 (W. Weyrauch) (mislabelled "N. Perú: Cueva de San Andrés" by Roewer).

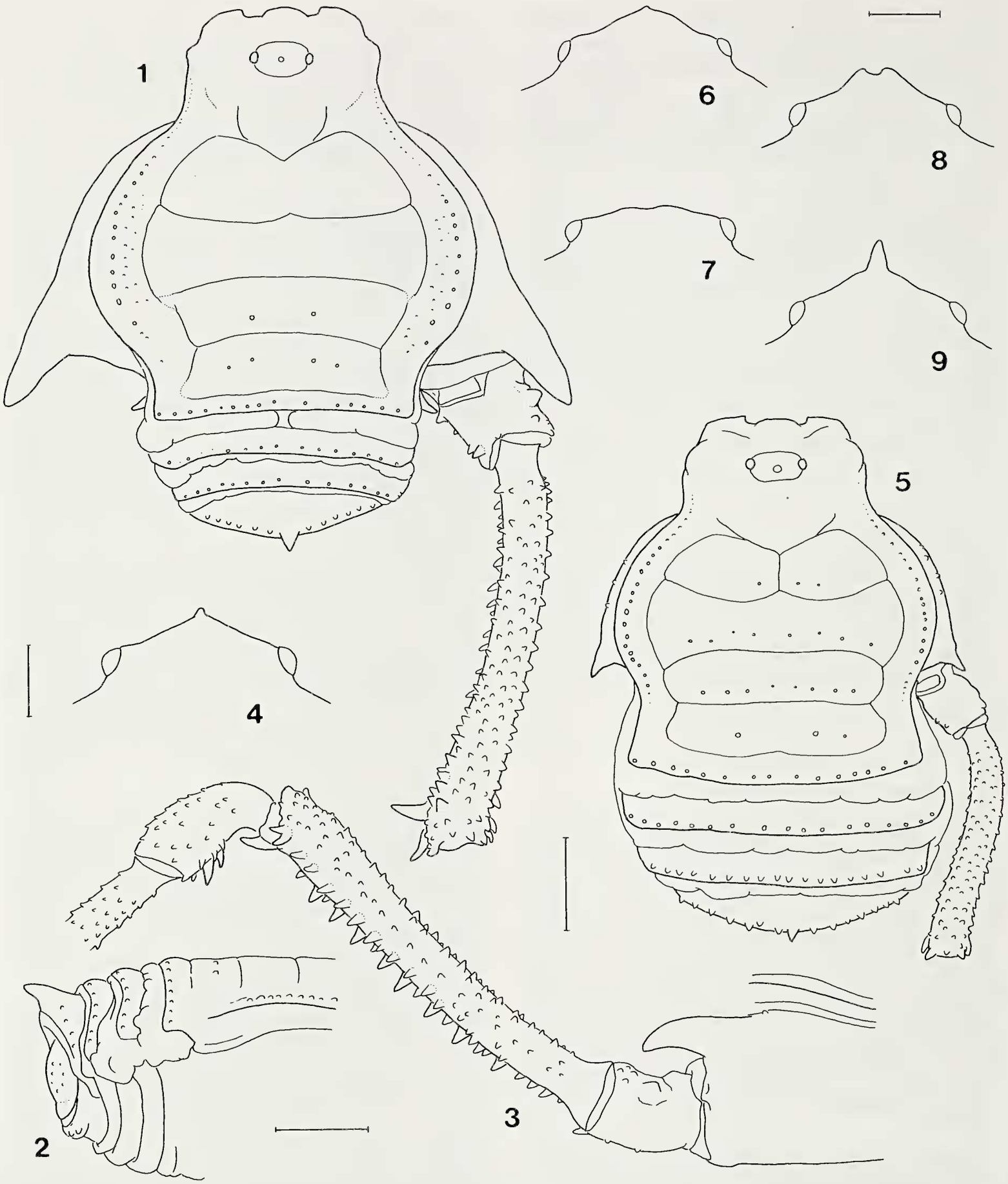
Etymology.—The Quechua noun *mitmaj* ("mitimae" in Spanish) designates any group of subjects—even an entire village—the Inca emperors decided to displace and resettle within the Empire, either for administrative, economic, cultural or military interests. Specimens in one of the vials I studied were mislabelled by Roewer as collected in North Peru (and so published under *A. erectispina*), but were actually captured in Yauyos. The species name is thus an elliptical reference to Roewer's error.

Type locality.—PERÚ, *Departamento Lima,* Tintín (3100 m), 12°18′S, 75°49′W.

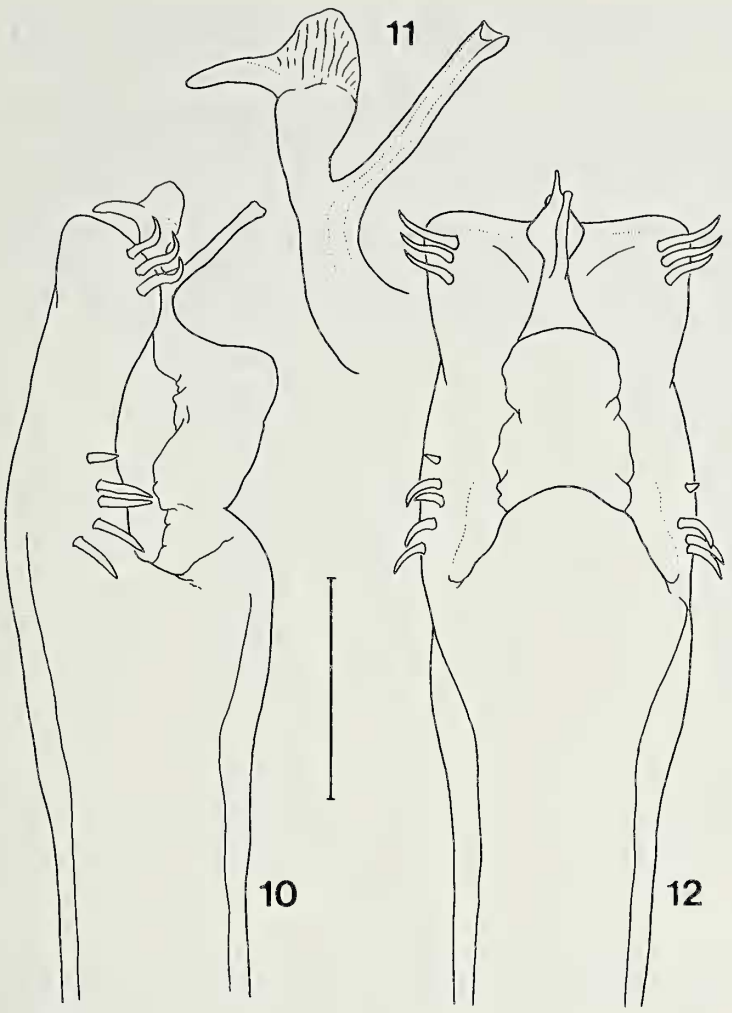
Diagnosis.—Males of *A. mitmaj* are easily identified by the spiny and rather simple femur and tibia IV (Figs. 1, 3); most congeners have rows of blunt tubercles on the femur, in many species this article is also armed with differently shaped dorsal apophyses (cf. Acosta 2001). While the habitus of the males of *Acrographinotus* is very characteristic, because of the markedly diagonal articulation of trochanter IV, this is much less noticeable in *A. mitmaj* (Fig. 1). Such peculiar external morphology puts the new species in an isolated position in the genus. Like other *Acrographinotus,* males bear a median apophysis on the 3rd free tergite, though comparatively much less developed in *A. mitmaj.* Features such as the number of tarsomeres, and armature of the scutum and the ocular mound agree with those of the genus.

Description.—Measurements of male holotype and female allotype: Table 1. Dorsal scutum length: males 6.76–9.53 mm ($\bar{x}$ = 8.04 mm, n = 9), females 6.41–7.58 mm ($\bar{x}$ = 7.28 mm, n = 15). General color light hazel, the prosoma shows a faint pigmentary reticulation, which extends to the scutum edges and to the ventral side; areas I–V and free tergites lighter; leg IV from coxa to tibia darker and more reddish; chelicera, pedipalps, legs I–III, distal portion of tibia IV, metatarsus and tarsus yellowish.

Male: Ocular mound normally with unpaired armature, varying from completely unarmed to armed with spiniform apophysis; the latter may be blunt or be replaced by double, blunt lobulation (paired!)(see variability below and Figs. 6–9). Scutum unarmed, tegument with matt texture (under higher magnification a delicate granulation is observed). All scutal areas may have very few, inconspicuous, minute granules (generally, area V, free tergites and lateral areas bear one row of granules, while in remaining areas granules are sparse). Free tergite III with short apophysis, normally pointed obliquely upwards (see Variability and Fig. 2), with a row of small acute granules on each side. Dorsal and ventral anal plate with granulous border, ventral one with a pair of paramedian, slightly larger granules. Legs I–III unarmed, granulous. Leg IV: Coxa smooth, prolateral apophysis strong, slightly curved in lateral view; a short, hook-shaped retrolateral apophysis can be seen in ventral view between trochanter IV and the first sternite. Trochanter articulated slightly sideways, with small apophyses: prolateral apophysis uni- or bilobate; proapical edge with slight tubercle or granule group; one or two small acute retroapical apophyses; retroproximal apophysis opposed to retrolateral apophysis of coxa IV; small acute ventroapical apophysis, projecting over the trochanter-femur joint. Femur almost straight, with slight gradual thickening toward distal end; spiny appearance because of longitudinal rows of



Figures 1–9.—*Acrographinotus mitmaj* new species. 1–4. Male holotype. 1. Dorsal scutum, free tergites, coxae IV, right trochanter and femur IV, dorsal view. 2. Lateral view of free tergites, sternites and anal operculum. 3. Right coxa, trochanter, femur and patella IV, lateral view. 4. Ocular mound, posterior view. 5. Female allotype, dorsal scutum, free tergites, coxae IV, right trochanter and femur IV, dorsal view. 6–9. Variations of the ocular mound (paratypes), posterior view (Fig. 7 is a male, the remaining are females). Scale lines = 2 mm in Figs. 1–3, 5, 0.5 mm in Figs. 4, 6–9.



Figures 10–12.—*Acrographinotus mitmaj* new species. Distal end of penis (holotype). 10. Lateral view. 11. Detail of stylus and ventral process. 12. Dorsal view. Scale line = 0.2 mm.

acute equally-sized granules or tiny apophyses (Fig. 1); retroventral row with larger apophyses (Fig. 3); distal end with two ventromedial, hook-like larger apophyses: the subdistal pointed medially, the distal one (united to the former by its base) points posteriorly; proventral row ends in a bifid apophysis (or two apophyses, very close). Patella granulous, with 3–4 large spiniform apophyses and several smaller ventral apophyses. Tibia like femur, spiny and expanded toward distal tip, dorsum with much smaller granules, ventrum with pro- and retroventral rows of acute apophyses, increasing in size to distally (retroventral apophyses much larger). Metatarsus spiny and thick compared to tarsus. Penis (Figs. 10–12): truncus not dilated subterminally, the ventral plate shows the generic pattern of spine-like setae; stylus with characteristic "ibis head-shaped" ventral process, as described for the genus (Acosta 2001).

Female: Color more uniform than male, only pedipalps and legs I–III lighter. Granulation of dorsal scutum as in male, granules of free tergites somewhat taller and more acute, especially on free tergite III (a median granule is larger, corresponding to the apophysis of male). Coxa IV with conic, prolateral apophysis, and row of low granules under the scutum edge; tiny retrolateral apophysis. Trochanter IV with sparse granules. Femur IV with rows of acute granules; two apical apophyses slightly larger, one ventromedial—pointing downwards—the other ventrolateral (bifid).

Variability.—*Ocular mound* (n = 24): Most specimens bear a single, acute apophysis (n = 13), either low (n = 6, among them the holotype, Fig. 4) or tall (n = 7, Fig. 9). Three specimens have a low, blunt mound. A paired condition was observed in 8 individuals, ranging from a pair of very low mounds with a subtle median notch in between (Fig. 7), to more elevated apophyses, blunt and rounded-tipped (Fig. 8). Females have comparatively higher ocular mounds than males.

Apophysis of the 3rd free tergite: Only in four males (holotype included) is this apophysis pointing upwards; in the remaining five it is either curved (the tip points downwards) or horizontal. In the females, the tiny apophysis can be diagonally upwards-pointing (n = 10) or horizontal (n = 5).

Femur IV length/scutum length ratio (males): Femur IV length (FL) varies allometrically (+) with respect to the scutum length (SL): in males with scutum less than 8 mm, the femur is shorter than the scutum; with scutum length over 8 mm the femur is longer than the scutum. Specimens with extreme values: min. = FL 5.4, SL 6.8; max. = FL 11.7, SL 9.5. Mean (n = 9): FL 8.0, SL 8.0. The apical thickening of the femur IV is more evident in smaller specimens.

Number of tarsal segments, leg II: males (n = 17) with 8 (n = 12) or 9 tarsomeres (n = 5), females (n = 30) with 7 (n = 4), 8 (n = 25) or 9 (n = 1) tarsal segments.

Distribution.—Only known from two localities in the upper Río Cañete Valley (Mid-Perú, western slopes of the West Andes): the type locality, and Yauyos (3100–3200 m – 12°27′S, 75°54′W), situated less than 20 km away from the former.

DISCUSSION

Roewer (1929, 1963) paid excessive attention to a single diagnostic character (shape of apophysis on 3rd free tergite) to separate his

Table 1.—Measurements (mm) of the holotype male and allotype female of *Acrographinotus mitmaj* new species.

	Holotype male	Allotype female
Total body length (apophysis included)	10.86	10.86
Scutum, length/maximal width	8.10/7.69	7.53/6.46
Prosoma length/width	2.97/3.84	2.77/3.59
Leg I, total length/femur	15.78/4.02	12.60/3.25
Leg II, total length/femur	26.40/6.84	19.25/4.80
Leg III, total length/femur	22.81/6.19	16.77/4.39
Leg IV, total length	36.46	22.71
trochanter	2.20	1.36
femur	9.12	5.35
patella	3.16	2.20
tibia	8.25	4.83
metatarsus	10.51	6.34
tarsus	3.22	2.63
Pedipalp, total length/femur	10.08/2.50	8.71/2.21
Chelicera, total length	3.87	3.38
Ocular mound, width/height	1.32/0.47	1.20/0.41

two species, *A. erectispina* and *A. curvispina,* the former with an upwards pointing apophysis, the latter with a curved, downwards pointing one. This is not only an oversimplification but was also based in an erroneus judgement of the character in *erectispina* (the supposedly erect apophysis is most likely just an artifact of the holotype, caused by the contracted opisthosoma (Acosta 2001)). As previously indicated, the condition of the apophysis varies intraspecifically in *A. mitmaj,* and actually in a few specimens it points upwards. In any case, when comparing the rest of the morphology, so different in most features, Roewer's misidentifications are at least surprising. Another character that was formerly misunderstood is the armature of the ocular mound. The genus was traditionally characterised as bearing "unpaired armature" (Roewer 1929), while, for example, the genus *Liographinotus* Roewer 1957 (now under synonymy of *Acrographinotus* (Acosta 2001)), was armed with two small tubercles (paired armature). It is now clear that the armature of the ocular mound is a reliable character in species with a tall tuber oculorum (e.g., *A. curvispina*), but is highly variable when the ocular mound is low (as for example, *A. ortizi* and *A. mitmaj*). In the latter, some specimens show a single median tubercle or small apophysis, while other individuals have no armature of any kind; others finally have a slight median depression instead, giving the elevated laterals of this notch the appearance of paired tubercles (cf. Fig. 8). It is to be noted that such a variable condition was once used to define a monotypic genus (*Liographinotus*).

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